

Listing of the Claims

1. (Original) An isolated culture of *Chrysosporium lucknowense* Garg 27K having accession number VKM F-3500D.
- 2-5. (Cancelled)
6. (Previously presented) A composition according to claim 112, wherein the fungus is a mutant strain of *Chrysosporium lucknowense* Garg 27K.
7. (Previously presented) A composition according to claim 112 having cellulase activity at a temperature from about 40°C to about 60°C, at a pH from about 5.0 to about 11.0.
8. (Previously presented) A composition according to claim 112 having at least 50% of the optimal cellulase activity, at a pH from about 6.0 to about 7.0, at a temperature from about 40°C to about 60°C.
9. (Previously presented) A composition according to claim 112 wherein said cellulase activity is assayed by any one of the CMC₅, RBBCMC₅, endovisco-metric or filter paper activity assays.
10. (Previously presented) A substantially purified and isolated protein fraction, obtained from a composition according to claim 112, and having at least 50% of its maximal cellulase activity at a pH between about 6.0 and about 7.0.
11. (Original) An endoglucanase obtained from a fraction according to claim 10, having a molecular weight of about 25 kD and pI of about 4.
12. (Original) An endoglucanase obtained from a fraction according to claim 10, having a molecular weight of about 70 kD and a pI of about 4.

13. (Original) An endoglucanase obtained from a fraction according to claim 10, having a molecular weight of about 60 kD and a pI of about 3.

14. (Original) An endoglucanase obtained from a fraction according to claim 10, having a molecular weight of about 43 kD and a pI of about 3.

15. (Original) A cellobiohydrolase obtained from a fraction according to claim 10, having a molecular weight of about 60 kD and a pI of about 4.

16. (Original) A substantially purified and isolated neutral and/or alkaline cellulase enzyme, isolated from a protein fraction according to claim 10, and having a pI of between about 3 and about 5.5.

17. (Original) A cellulase according to claim 16 wherein said cellulase possesses either endoglucanase or cellobiohydrolase activity.

18. (Original) A cellulase according to claim 16 wherein said cellulase retains at least 50% of its maximal cellulase activity at a pH between about 6.0 and about 7.0.

19. (Original) An endoglucanase obtained from a fraction according to claim 10 and having a molecular weight of about 25 kD.

20. (Original) An endoglucanase obtained from a fraction according to claim 10 and having a molecular weight of about 70 kD.

21. (Original) An endoglucanase obtained from a fraction according to claim 10 and having a molecular weight of about 43 kD.

22. (Original) A detergent composition containing one or more purified enzymes isolated from a protein fraction according to claim 10, and further comprising a surfactant.

23. (Original) A fabric softening composition containing one or more purified enzymes obtained from the protein fraction according to claim 10.

24. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, comprising an isolated cellulase whose amino acid sequence is encoded by a nucleic acid sequence from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

25-27. (Cancelled)

28. (Previously presented) A composition according to claim 24 further comprising one or more components selected from the group consisting of pumice stones, abrasives, softeners, solvents, preservatives, bleaching agents, bluing agents, fluorescent dyes, antioxidants, solubilizers, detergents, surfactants, enzymes, builders, anti-redeposition agents, buffers, caking inhibitors, masking agents for factors inhibiting the cellulase activity, and cellulase activators.

29. (Cancelled)

30. (Original) The composition of claim 24, wherein the pH is between 10.0 and about 11.0.

31-33. (Cancelled)

34. (Original) The composition of claim 28, wherein the pH is between 10.0 and about 11.0.

35. (Cancelled)

36. (Previously amended) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, comprising an isolated cellulase whose amino acid sequence is encoded by a

nucleic acid sequence from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D, said composition further comprising one or more components selected from the group consisting of proteinases, detergents, and surfactants.

37-39. (Cancelled)

40. (Currently amended) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 33 units of endo-1,4- β -glucanase activity per gram of dry composition, as measured by an endovisco-metric assay, of an isolated cellulase whose amino acid sequence is encoded by a nucleic acid sequence from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

41-42. (Cancelled)

43. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 33 units of endo-1,4- β -glucanase activity per gram of dry composition, as measured by an endovisco-metric assay, of an isolated cellulase obtained from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

44-45 (Cancelled)

46. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 120 units of 1,4- β -glucanase activity per gram of dry composition, as measured by an endovisco-metric assay, of an isolated cellulase whose amino acid sequence is encoded by a nucleic acid sequence from a wild-type or mutant fungus of

the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

47-48 (Cancelled)

49. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 120 units of endo-1,4- β -glucanase activity per gram of dry composition, as measured by an endoviscometric assay, of an isolated cellulase obtained from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

50-51. (Cancelled)

52. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 964 units of endo 1,4- β -glucanase activity per gram of dry composition, as measured by an endoviscometric assay, of an isolated cellulase whose amino acid sequence is encoded by a nucleic acid sequence from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

53-54. (Cancelled)

55. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 964 units of endo-1,4- β -glucanase activity per gram of dry composition, of an isolated cellulase obtained from a wild-type or mutant fungus of the genus *Chrysosporium*. wherein the fungus is *Chrysosporium lucknowense* Garg 27K. accession number VKM F-3500D.

56-57 (Cancelled)

58. (Previously presented) A laundry detergent composition, comprising an isolated cellulase whose amino acid sequence is encoded by a nucleic acid sequence from a wild-type or mutant fungus of the genus *Chrysosporium* wherein the fungus is *Chrysosporium lucknowense* Garg 27K. accession number VKM F-3500D, further comprising one or more surfactants.

59-60 (Cancelled)

61. (Previously presented) A laundry detergent composition, comprising an isolated cellulase obtained from a wild-type or mutant fungus of the genus *Chrysosporium*. wherein the fungus is *Chrysosporium lucknowense* Garg 27K accession number VKM F-3500D, further comprising one or more surfactants.

62-66. (Cancelled)

67. (Currently amended) A method for producing the composition according to claim 112, said method comprising growing a mutant fungus of the genus *Chrysosporium* in culture in a suitable medium, wherein the neutral and/or alkaline cellulase is secreted into the medium.

68-72. (Cancelled)

73. (Currently amended) A method of stonewashing denim fabric or denim jeans, said method comprising treating said denim fabric or denim jeans with a composition according to anyone of claims 6, 10, 24. and 112, thereby obtaining a stonewashed denim fabric or denim jeans.

74. (Currently amended) A method of biopolishing, defibrillating, bleaching, dyeing, or desizing textiles comprising treating said textiles with a composition according to anyone of

claims 6, 10, 24, and 112, thereby obtaining a textile which has been polished, bleached, dyed, desized or has reduced fibers.

75. (Currently amended) A method of deinking or biobleaching paper or pulp, said method comprising treating said paper or pulp with a composition according to anyone of claims 6, 10, 24, and 112, thereby obtaining a paper or pulp which has been deinked or bleached.

76. (Currently amended) A method for enhancing the softness or feel of cellulose or cotton-containing fabric, comprising treating said fabric with a composition according to anyone of claims 6, 10, 24, and 112, thereby obtaining a softer fabric.

77-79. (Cancelled)

80. (Currently amended) A method for generating mutant strains of the genus *Chrysosporium* which produce enhanced cellulase activity at neutral and/or alkaline pH's, comprising:

- (a) mutating spores of a fungus of the genus *Chrysosporium*;
- (b) culturing the spores from step (a); and
- (c) screening the cultures from step (b) for enhanced levels of neutral and/or alkaline cellulase activity, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D, said cultures have cellulase activity at a temperature between 40 °C and 60°C, and at a pH of about 5 to about 12.

81. (Original) The method of claim 80 wherein the mutating step comprises exposing the spores to ultraviolet light or a chemical mutagen.

82. (Original) The method of claim 81 wherein the chemical mutagen is nitrous acid, N-methyl-N'-nitro-N-nitrosoguanidine, or 4-nitroquinolone-N-oxide.

83. (Previously presented) A mutant strain of the genus *Chrysosporium* obtained by the method of anyone of claims 80 or 81.

84- 91 (Cancelled)

92. (Previously presented) A method of culturing a fungus of *Chrysosporium lucknowense* Garg 27K having accession number VKM F-3500D in a medium containing inorganic salts, carbon sources, and organic nitrogen sources, at a pH between about 5 and 8.

93. (Previously presented) A method of culturing a fungus of the genus *Chrysosporium* according to claim 92, wherein the pH is between about 6.5 and 7.5.

94. (Previously presented) A method of culturing a fungus of the genus *Chrysosporium* according to claim 92, wherein the pH is between about 6.9 and 7.1.

95. (Previously presented) A method of culturing a fungus of the genus *Chrysosporium* according to claim 92, wherein the pH is maintained at 7.5.

96-108. (Cancelled)

109. (Previously presented) The composition according to claim 6, wherein the fungus is a mutant strain of *Chrysosporium lucknowense* Garg 27K having accession number VKM F-3632D.

110. (Currently amended) A method of saccharification of cellulose, comprising treating the cellulose with an isolated cellulase enzyme of claim 16 having at least 50% of its maximal cellulase activity at a neutral and/or alkaline pH, whereby the cellulose is hydrolyzed.

111. (Previously presented) The method of claim 110, wherein the cellulose is a lignocellulose biomass from agriculture, forest products, municipal solid waste, or other like sources.

112. (Previously presented) A composition comprising an isolated neutral and/or alkaline cellulase, said isolated neutral and/or alkaline cellulase is obtained from a wild type or

mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.

113. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 191 units of endo-1,4- β -glucanase activity per gram of dry composition, as measured by an endoviscometric assay, of an isolated cellulase whose amino acid sequence is encoded by a nucleic acid sequence from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F- 3500D.

114. (Previously presented) A composition for the enzymatic treatment of cellulosic fibers or cellulosic fabrics, having at least about 191 units of endo-1,4-I3-glucanase activity per gram of dry composition, as measured by an endoviscometric assay, of an isolated cellulase obtained from a wild-type or mutant fungus of the genus *Chrysosporium*, wherein the fungus is *Chrysosporium lucknowense* Garg 27K, accession number VKM F-3500D.